

MI DEQ & RETAP Pollution Prevention (P2) Training

Packaging Reduction, Reuse & Recycling

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Driving Forces on Legislation



- ❑ **Property Owners: NIMBY, “Universal Backyard”**
- ❑ **Taxpayers/Agencies: Pressured by rising disposal fees**
- ❑ **Environmentalists: Concerns of ecological effects**
- ❑ **Industries: Fear punitive legislation & regulations**

Our “Universal Backyard”

☐ **NIMBY**

☐ **NOTE**

☐ **BANANA**

☐ **CAVE**

☐ **NOPE**

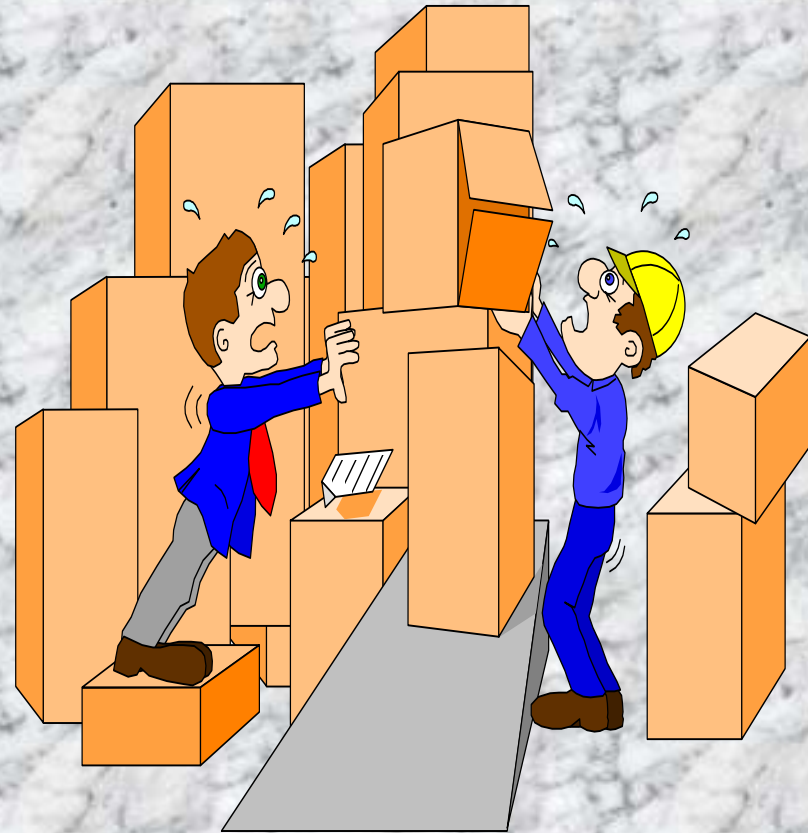
Inventory Management

☐ Procurement Control

- ☐ Material types & quantities
- ☐ Container sizes & packaging requirements
- ☐ Raw material quality
- ☐ MSDSs

☐ Material Control

- ☐ Unloading & storage
- ☐ Proper labeling
- ☐ Handling & use (FiFo & FISH)



Inventory Control

- ☐ **Identify all stock on hand**
- ☐ **Identify chemicals/ingredients of concern**
- ☐ **Create list of environmentally-approved chemicals & purchase specifications**
- ☐ **Route new chemical purchases for EHS approval**
- ☐ **Incorporate environmental concerns into company purchasing guidelines**
- ☐ **Incorporate returnable/reusable dunnage into contracts**

Procurement Inventory Control

- ☐ **Purchase quantities you can use before chemical expiration**
- ☐ **Purchase smallest quantity of hazardous substance needed (e.g., 112(r) chemicals)**
- ☐ **Inspect incoming goods before accepting**

“On-hand” Inventory Control

- ☐ **Implement computerized inventory tracking**
- ☐ **Implement “pharmacy” approach—centralized control & disbursement of chemicals**
 - ☐ **use on-hand chemicals first (FIFO & FISH)**
 - ☐ **look for opportunities for other departments’ use**
 - ☐ **periodically check existing stock accuracy (“expireds”, correct quantities)**
- ☐ **Ensure all chemical containers are labeled & dated**
- ☐ **Return empty containers before receiving new container**

“On-hand” Inventory Control

- ☐ **Store containers to allow for visual inspection (leaks/drips)**
- ☐ **Stack containers to minimize puncture, breaking & tipping**
- ☐ **Store out of the way of high traffic areas**
- ☐ **Purchase quantities you can use before chemical expiration**
- ☐ **Purchase smallest quantity of hazardous substance needed (e.g., 112(r) chemicals)**

42 Cubic Yard Compactor Boxes 15 - 22 Loads per Day



Closer View of Compactor Loads



ID Solid Waste Materials



☐ Cardboard

☐ Wood

☐ Plastics

☐ Polystyrene

☐ Office Paper



Compactor Box Load

Total = 10,560 lbs.



Cardboard Separation

Total = 2,940 lbs. (27.8%)



- ☐ Conveyor of Mixed Solid Wastes
- ☐ Cardboard Sorting by Hand
- ☐ Uncontaminated Cardboard is Baled



**Solid Waste w/ Cardboard
Removed = 7,620 lbs. (71.2%)**



Wood Separation



Wood = 2,400 lbs. (22.7%)



Trash = 5,220 lbs. (49.4%)



Major Considerations for Packaging Change

- ❑ Consumer Expectations
- ❑ Marketability
- ❑ Cost and Economy



Packaging:

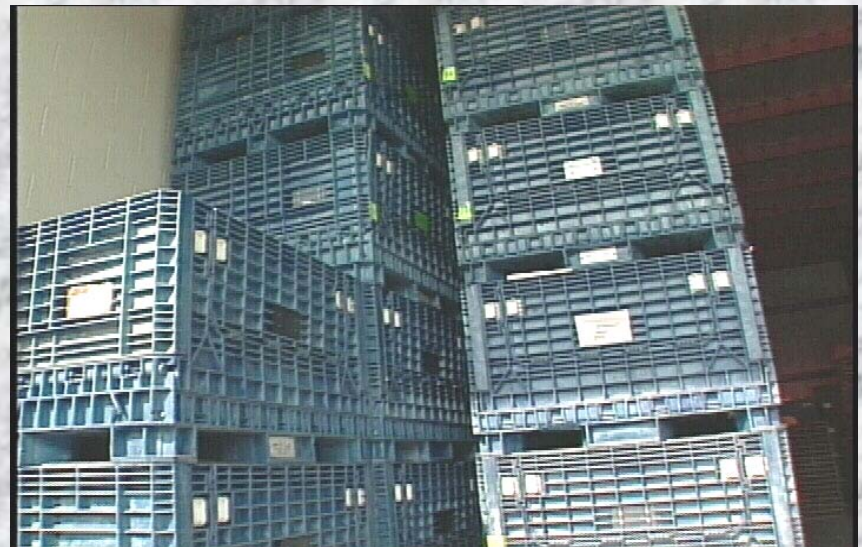
Source Reduction Objectives

- ☐ **Reduce amount of packaging waste**
- ☐ **Reduce negative environmental impacts of wastes**
- ☐ **Target the manufacturer**
- ☐ **Motivate voluntary actions**



Preferred Packaging Guidelines

- ☐ NO Packaging
- ☐ Minimal Packaging
- ☐ Consumable
- ☐ Returnable/Reusable
- ☐ Recyclable
Packaging, Recycled
Material



Physical Properties of Reusable Shipping Containers

- ☐ Collapsibility
- ☐ Nestability
- ☐ Stackability
- ☐ Other features:
 - ☐ Lids
 - ☐ Side Access
 - ☐ Solid vs. Lattice-work walls & bottoms
 - ☐ Size



Source Reduction Options for Packaging

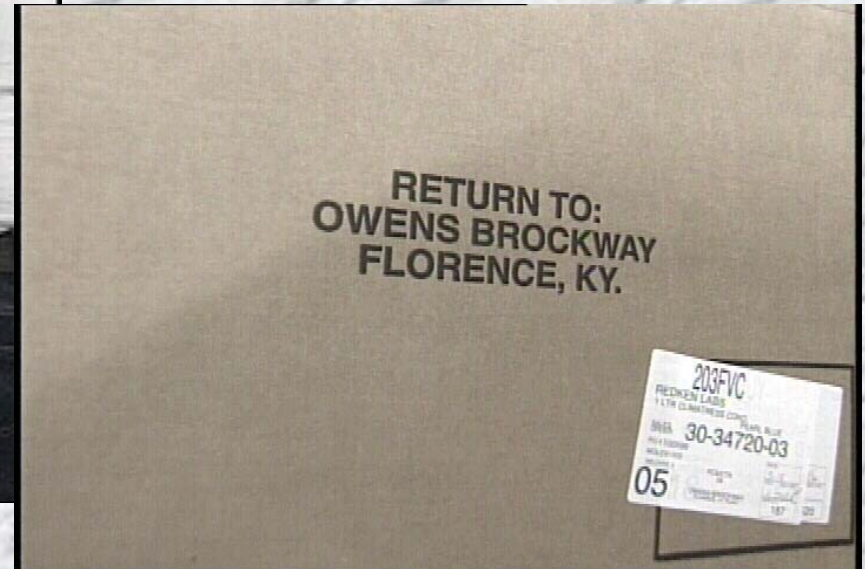
- ☐ **Light weighting**
- ☐ **Selecting another material**
- ☐ **Bulk packaging**
- ☐ **Switching from single-use to reusable containers**

Returnable for Reuse



Packaging Designed for Ease of Breakdown & Reuse

**L'Oreal USA
Florence, KY**



Plastic Container, Strap & Sheet Recycling

**L'Oreal USA
Florence, KY**



Redesign Packaging for Reuse to Avoid Recycling



Receiving Polystyrene Packaging



Protective Packaging Polystyrene Sheets & Containers



Packaging Separation

Polystyrene Sheets



Packaging Contamination

No Recycling



Packaging Processing Materials Handling



Volume Reduction Processed Polystyrene



Processed Polystyrene Shipping for Reuse



Product Protection

Polystyrene Sheets



Product Protection

Polystyrene Corner Guards



Reusable Polystyrene Packaging



Five Obstacles

- ☐ Large initial capital expense
- ☐ Cost of tracking & accounting for containers
- ☐ Cost of returning containers to points of origin
- ☐ Lack of storage space for empty containers
- ☐ Resistance to change by suppliers, distributors & customers

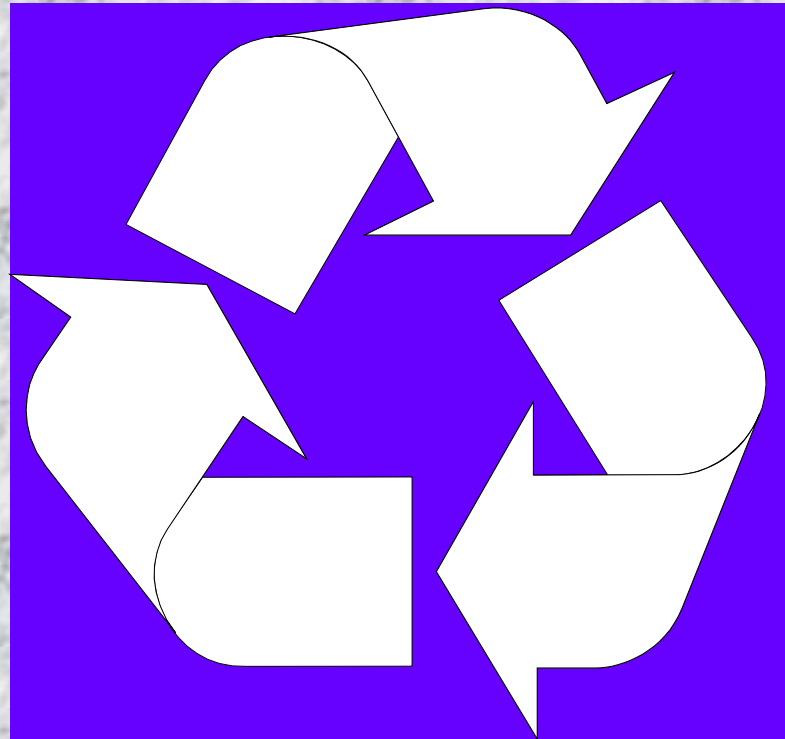
Challenges to Recycling

- ❑ Cheaper to use virgin materials
- ❑ Recycled materials often fail to meet Buyer Specs
- ❑ Consumer mistrust of recycled materials
- ❑ Inadequate supply of Post-consumer materials



Reclaim, Recover & Reuse

On-site



Off-site

Materials Exchange

Kentucky Industrial Materials Exchange (KIME)

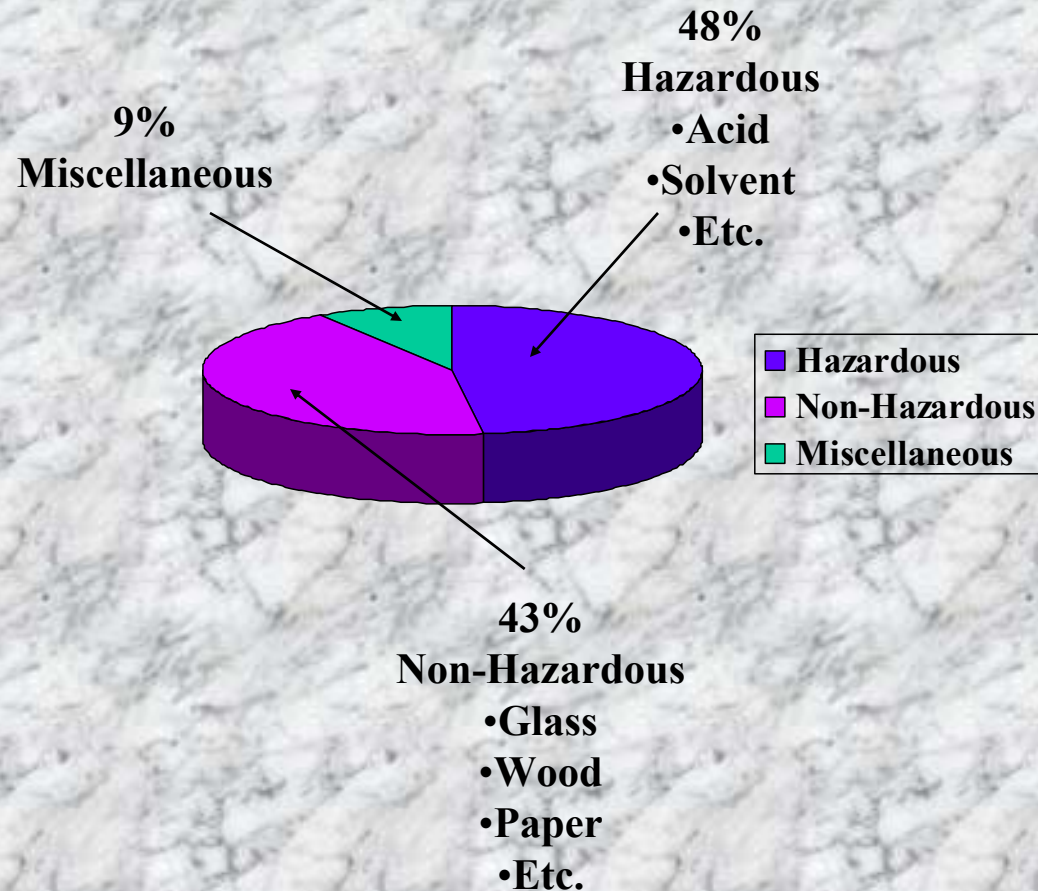
- ❑ Don't Say WASTE!**
- ❑ It's a MATERIALS exchange not WASTE exchange**
- ❑ Shift focus away from just 'getting rid of stuff'**
- ❑ Put focus on procurement to close the loop**

Kentucky Industrial Materials Exchange

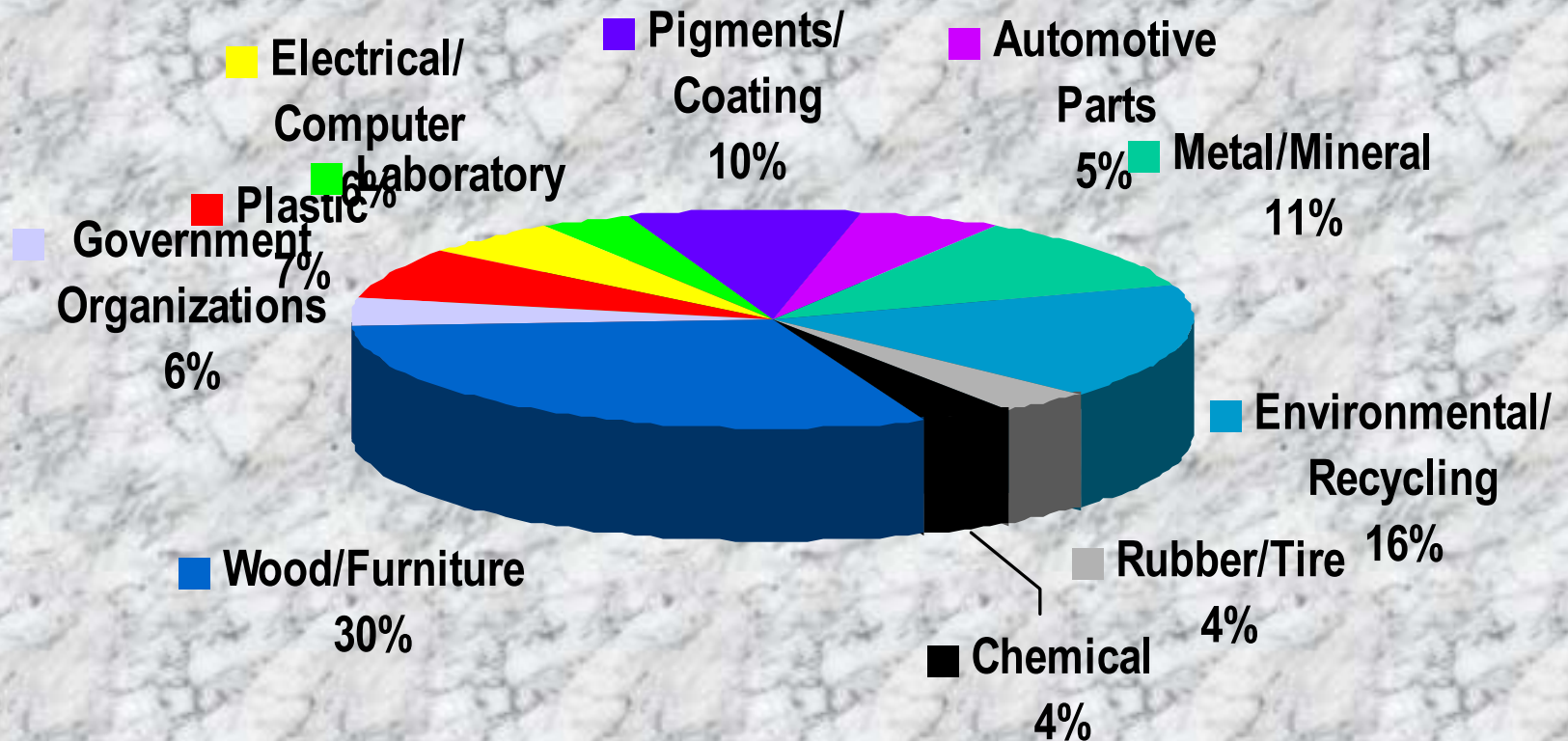
☐ What is KIME?

- ☐ A database**
- ☐ A matching service**
- ☐ A way to reduce landfill volume**
- ☐ A way for companies to reduce waste disposal costs & raw material costs**

Kentucky Industrial Materials Exchange



Types of Companies Using KIME



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The Next Steps: P2 & Environmentally Preferable Purchasing

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